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NATIONAL
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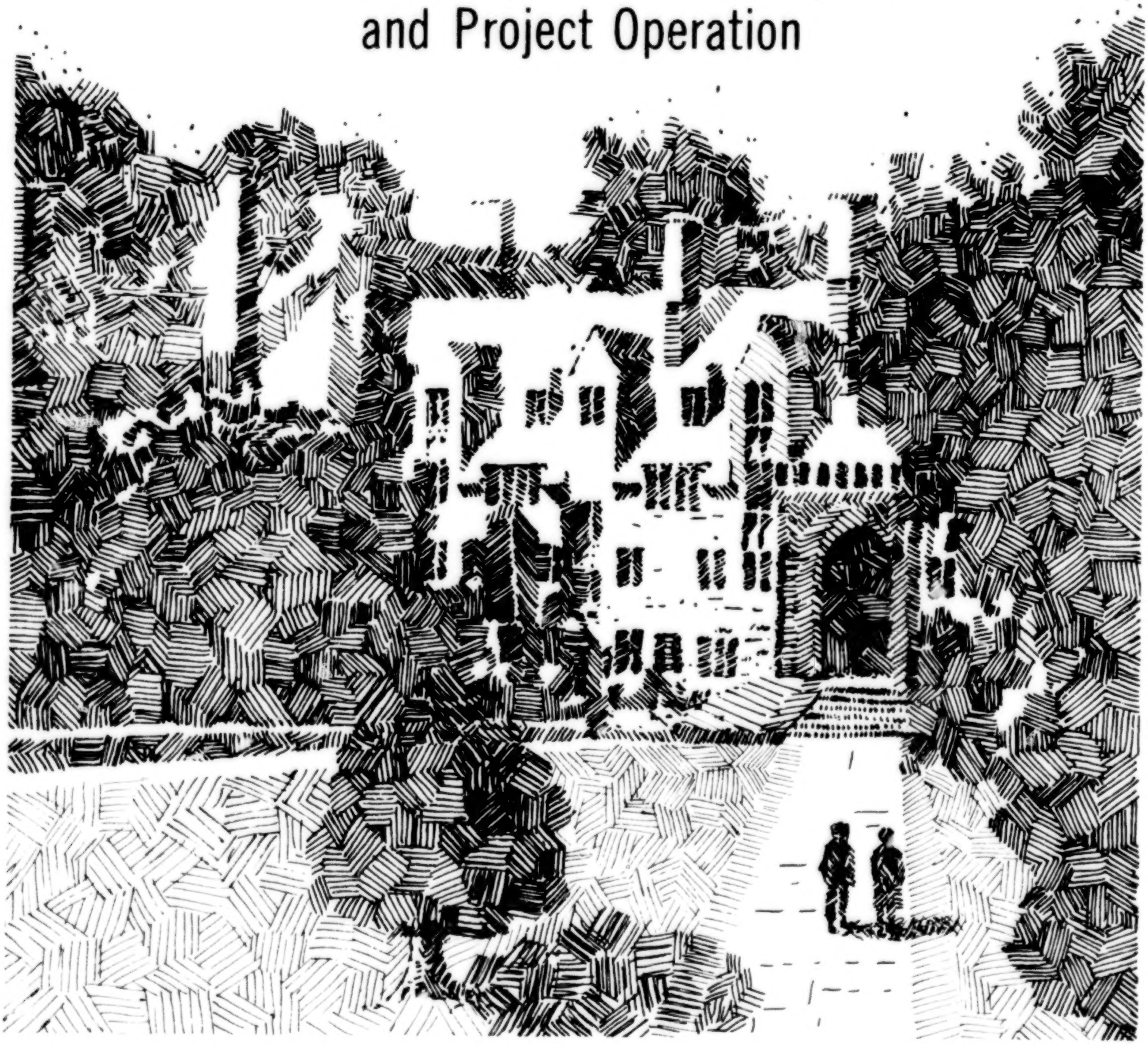
ORIGINAL

DIVISION OF SCIENTIFIC PERSONNEL IMPROVEMENT

STUDENT-ORIGINATED STUDIES

Guide for Preparation of Proposals and Project Operation



CLOSING DATE: November 10, 1978 **AWARDS ANNOUNCED: March 1, 1979**

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STUDENT-ORIGINATED STUDIES PROGRAM

I. GENERAL INFORMATION

INTRODUCTION

The Student-Originated Studies (SOS) Program is designed to provide teams of college students with experience in independent, self-directed study in which they initiate, plan and direct their own research activities with minimal supervision. Each project is problem-oriented and seeks an understanding of and possible solutions to a local problem or issue of public policy that has immediate relevance to society.

Proposals may be submitted in any combination of science[1] disciplines but they must present an interdisciplinary approach to the collection, analysis, and dissemination of scientific data. The proposal should describe the scientific research the student group wishes to carry out and give details as to the funds required for that purpose. The problem or activity must not only contain substantial scientific and technical components but must also require the application of several science disciplines. The emphasis in the Program is on independent study as an educational vehicle to train the kinds of scientific personnel that our society will need to solve interdisciplinary problems.

In Fiscal Year 1978, 172 proposals were submitted to SOS. The total dollar amount requested was $2.4 million; the Program was able to support 65 projects at a cost of $0.86 million. Approximately the same level of funding is anticipated in FY 1979.

ELIGIBILITY

Institutions

Baccalaureate degree granting colleges and universities agreeing to serve as host and fiscal agent for the project are eligible as sponsors of projects. All other organizations are ineligible.

Participants[2]

Each project is to be conducted by a group of students composed predominantly of undergraduates. "Undergraduates" is defined by one's class standing as of March 31, 1979. The inclusion of graduate students on the team (not to exceed 40 per cent) is a matter of local decision.

To be eligible for NSF stipend, a student must be regularly enrolled in a college or university as a junior[3] senior, or graduate student at the time of acceptance for participation. Students who receive the baccalaureate degree during the academic year immediately preceding the SOS experience shall be eligible for support only if they plan to attend graduate school the following term or if they present an adequate justification of their academic commitment to the SOS study, found acceptable to the student project director and to NSF.

This Program is targeted primarily at upper-division undergraduate and graduate students who have completed a substantial part of their basic course work in science and mathematics and are appropriately grounded in the fundamentals of science.

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[1] "Science as used herein refers to: the mathematical, physical, biological, medical (but not clinical), engineering and social sciences, history and philosophy of science, and fields which comprise ovelapping areas of two or more sciences (e.g., biophysics, geochemistry, meteorology, and oceanography).

[2] See Participant Eligibility, Page 12.

[3] Students must have completed the junior year by the time of *participation* in the project.

Any student who has received stipend support for a total of 20 weeks or more under projects in SOS and the Undergraduate Research Participation (URP) Program is ineligible for further support under SOS. Such a student may participate in SOS on a non-stipend basis.

CATEGORIES OF SUPPORT FROM NSF

Financial support falls into three general categories:

1. *Stipend support* for participants may be requested at a rate not to exceed $100 per week, up to a maximum of 12 weeks. The Foundation views this support to be an educational grant-in-aid and not as wages paid for services rendered.
2. *Operating expenses* may include supplies, field expenses, travel, clerical services, faculty salaries, insurance and health fees. Since support for these expenses is provided by NSF, the participants may not be required to pay tuition, laboratory fees or other fees for enrollment and participation in the project. As a guide in calculating these expenses, NSF considers an average rate of direct operation costs per student to be $700. This figure will vary according to the nature of the project—its scientific content and setting.
3. *Indirect costs* paid to the host institution are based on the approved rate for the particular college or university.

INSTITUTIONAL RESPONSIBILITIES

During the planning stages, the student group will need to secure specific written commitments from the college or university serving as sponsor for the project. The proposal must indicate that:

1. If awarded, the institution agrees to accept the grant on behalf of the student group, and to assume responsibility for insuring that the funds are expended for the purposes of the project as set forth (a) in the proposal approved by the Foundation (including any modifications adopted by mutual consent of the Foundation and the grantee), and (b) in the formal grant instruments.
2. The institution agrees to make available for the purposes of the project such space, facilities and equipment as may be required. These are to be enumerated in the proposal.
3. The institution confirms the appointment of an appropriate member of its faculty named in the proposal as *Project Advisor*. This appointment should have the approval of the student group, the project advisor and the institution. He or she must register his or her acceptance by signing the cover sheet of the proposal.

II. PREPARATION OF PROPOSALS

NATURE OF PROPOSALS

In the Student-Originated Studies Program, *only proposed projects that meet all of the following criteria will be considered:*

1. *The approach to understanding the problem and the search for a solution are interdisciplinary.*
2. *The problem has immediate relevance to society, and can be studied locally or regionally without extensive travel costs.*
3. *Meaningful scientific data concerning a science- or technology-based problem or policy issues will be collected, analyzed, and disseminated.*
4. *The activity period is limited to 10-12 weeks of full-time participation for a group of from 5 to 10 students (see Participant Eligibility, Page 1).*
5. *Each project must be student-originated and student-directed. Students must select the problem, design the study, draft the proposal, and direct the course of the study.*
6. *Faculty advice is available and identified in those subject-fields where need is likely to arise.*

In previous years Student-Originated Studies support has extended to a broad range of topics including, but not limited to, projects on natural resource utilization, pollution studies, waste disposal, urban studies, transportation, architectural or engineering practices, land use, design studies for improving the safety, efficiency, repairability and/or longevity of consumer product. Proposals for 1979 should likewise bear a close relationship to the quality of human life, the conservation of scarce resources, or the social and physical well-being of the American citizenry.

The activity must have potential utility to specific prospective users in units of state or local government, civic and community organizations, bonafide public interest groups, or industrial organizations. Active contact with local users should be established before selection of final topic is made so that appropriate inputs from them may be included in the research design. A productive dialogue shoud be maintained through the course of the study, climaxed by the presentation of the written findings to prospective users.

EVALUATION OF PROPOSALS

In selecting Student-Originated Studies proposals to be supported, the Foundation seeks the advice of panels of scientists and non-scientists drawn from the academic community and from other appropriate sources who are knowledgeable about scientific activities that have an immediate relevance to society.

Recommendations of these panels constitute a major element in the Foundation's determination of whether a grant will be made. In the final decisions on proposals to be supported, selection will be made strictly in merit order, except that in the cases of proposals considered to be of substantially equal merit, use may be made of other criteria such as geographical or disciplinary distribution of funds, distribution of awards among appropriate types of institutions, or others determined by Foundation policy and legislative intent.

The following criteria will be used by the review panelists in assigning a merit rating to proposals entered in the competition:

1. Appropriateness of the problem(s) to SOS: degree to which the problem(s) is science- or technology-based, interdisciplinary in nature, local, and of immediate social relevance.
2. Scientific merit of the project:
   A. The scientific/technical import of the problem.
   B. The strength and suitability of the research design.

3. Educational merit of the project: degree to which the problem is challenging but achievable, and the project likely to produce an instructive and rewarding introduction to research-type work.

4. Feasibility of project as to available time, participants, facilities and support.

5. Utilization of project findings: the social import of the problem and the potential usefulness of any answers obtained. The adequacy and appropriateness of project contacts with prospective users.

6. Student origination and direction of the project.

7. Competence of student team: the balance of student disciplines relative to the problem. The apparent strength of student project director and participants.
8. Quality and availability of faculty advice—the faculty advisor and other faculty associated with the project.

9. Adequacy of facilities and equipment necessary for the project.

10. Adequacy of management of the project: plan for participant selection. Plan for individual assignments and coordination of the study. Plan for information flow and interactions among subgroups.

CONTENT OF PROPOSALS

Proposal Format

A proposal should consist of the following parts, arranged in order as follows:

Cover Page
Summary Budget Page
Budget Explanations
Abstract
Narrative
Appendices

Cover Page

The Cover Page should be prepared as nearly as possible in accordance with the sample provided. It should be duplicated directly. One copy must bear the signatures of the Student Project Director, the Faculty Project Advisor, and an official authorized to commit the institution to carry out the project.

It is important that the name, title and complete mailing address of the project director and the official who signs for the institution be typed in the appropriate places on the cover sheet.

Social security numbers are used by the Foundation to monitor and facilitate the processing of numerous proposals, and to maintain award data. The number is solicited pursuant to the general authority of the Foundation under the NSF Act of 1950, as amended. Submission of social security numbers is voluntary and refusal to disclose a social security number will not affect an institution's eligibility for award.

The Disciplinary Codes and Fields of Interest and Application to be entered on the Cover Page are listed in Pages 7 and 8.

Summary Budget Pages and Budget Explanations

The budget is presented in two parts—the Summary Budget Pages (Pp. 16 and 17) and the Budget Explanations. The function of the latter is to present a brief but convincing justification for all direct costs listed on the Summary Budget Page. Items should appear in the same order in both, with corresponding numbering. The proposal must justify each item for which support is requested.

The Budget Pages included herein should be duplicated directly.

The following sections, indicated by letter, refer to respective sections of the two Summary Budget Pages:

A. No entries are made in Line No.'s 1-6. Enter in Line No. 7 any allowance for released time for the Faculty Project Advisor. This amount should not exceed $1,200, unless specifically justified.
B. It is assumed that participants will do most of the clerical work. If justified, funds may be requested in Line No. 5 for typing manuscripts, etc. Special technical assistance for the project at the institution's hourly wage rates may be requested in Line No. 6.
C. Consult institution's business office.
D. An item having an acquisition cost of $300 or more and an expected life of one year or more may not be purchased with SOS grant funds. Rental or lease of scientific equipment essential to the project may be included in the budget provided the equipment is not leased from the host institution. Funds to purchase long-lived items costing less than $300, or to

rent more expensive equipment, may be listed in D. (Items with useful life of less than one year and costing less than $300 should be considered expendable and listed under E).

E. Funds for expendable items may be listed here under such headings as chemicals, glassware, chart paper, etc.

F. List here essential costs of travel actually incident to protect activities (not incuding participants' travel from their homes or home institutions to the project). Faculty travel required to maintain essential contact with the student team may be requested with special justification. Funds should be requested for two student participants to attend a post-Christmas Foundation sponsored Reporting Meeting to be held in Washington, D.C. Expenses should be based on round trip jet tourist fare from home or home institution, and should include $150 for living expenses at a per diem of $50 per day for each of 3 days—2 days to attend the meetings and one day for travel. Train, bus, or car pool travel may be elected within the cost limitation of jet tourist fare.

G. Grant funds may not be used for foreign travel.

H. Cost of duplicating and distributing copies of the project's final technical report and expenses arising from manuscript preparation and page costs for any technical papers resulting from the study may be estimated and requested here.

I. Essential costs for commuter time may be listed here.

J. In SOS, consultant service charges are not anticipated. Any request requires special justification.

K. List at Line No. 1 total amount for participant stipends at a rate not to exceed $100 per week. (Stipends MAY NOT be used in the base for computing indirect costs due the host institution.) See also taxability of stipends on Page 10. Make no requests at Line No.'s 2, 3, 4.

L. The Foundation's provision for direct operating costs is considered to be in lieu of tuition and fees. Such costs are thus not an allowable budget item, nor may individuals who are receiving participant support from SOS be required to pay tuition, registration, nonresident or other fees relevant to instructional costs. Grantees are advised to make certain that adequate health and accident insurance is provided for student participants. Grantees conducting field projects should determine whether coverage normally available on campus applies to those in the field for extended periods. The budget may request funds needed for insurance not covered by the usual student health and accident plans. Health service and student union fees are normally allowable as direct costs for those who participate in SOS, provided: (1) such fees are required and collected from all other students; (2) participants reside on or near the campus during the project period; and (3) participants are provided the relevant services. Other activity or recreational fees must be borne by the participant IF HE OR SHE ELECTS to use such additional activities or facilities. Library usage fees may not be charged either to the grant or the participants when library usage is covered by the institution's indirect cost allowance.

N. Proposal budgets may include indirect costs up to the rate approved for the host institution. List the institution's approved rate and, if different, the rate requested. The approved rate and the proper base for the computation may be had from the business officer of the host institution, who should check with the Foundation's Cost Analysis Section to insure that the correct current rate is used. Student stipends MAY NOT be included in the base for computation of indirect costs.

The Budget Explanations should be on separate pages immediately following the Budget Pages.

Abstract

In no more than one page (double spaced), the abstract should summarize the project in the manner of an abstract for a research report. It should describe the problem to be investigated and the proposed experimental approach or study plan.

Narrative

The narrative portion of the proposal constitutes the principal basis for judging the merit of the project, and it should be prepared with great care.

The narrative should not exceed 15 double-spaced pages, and should cover the following topics arranged in order as follows:

1. The interdisciplinary science problem to be studied, and the research methodologies to be employed for collecting and analyzing the data.
2. A summary of prior research on this topic, and its relation to the present study. Include a description of how the study topic was selected.
3. The social significance of the study, and evidence that the project's findings hold promise for utilization by community, governmental or industrial bodies involved in planning and decisionmaking matters relating to the project.
4. The names of persons and organizations contacted regarding the study. Letters of support from potential users of the data may be included in the Appendix.
5. A description of the student group submitting the proposal including the disciplinary distribution and balance of skills or participants, and:

   —the number of participants for whom support is being sought;
   —a brief curriculum vita for each known participant, other than the student project director (see No. 6 below), should be included in the Appendix;
   —the disciplinary distribution and balancing of skills to be sought in filling remaining vacancies in the SOS team;
   —the methods for recruiting participants, including those from other institutions, if this is to be done.

6. A curriculum vitae of the student project director, following format set forth on page 18, showing highlights of his or her training and experience and other qualifications for leading the group and administering the project. Describe how the student project director was selected.
7. A time schedule in outine form, sufficient to demonstrate that realistic consideration has been given to the amount of work contemplated relative to available time and personnel. The schedule should include preparation prior to the formal initiation of the study.
8. A curriculum vitae of the Faculty Project Advisor, showing highlights of his or her training and experience and other qualifications for advising the group. Describe how he or she was nominated by the students. If other faculty will be consulted, describe their contribution and qualifications.
9. A description of the institutional facilities, including the library and equipment, specifically identifying what is to be available for use in the SOS project, and its adequacy for the project's needs.
10. A description of plans for managing the project, including breakdown into individual assignments, flow of information among participants, and planned interaction among subgroups.

Appendices

Materials that are supplementary to the text of the proposal, such as the following, may be included in appendices:

1. Supportive statements or materials that bear on the expected quality of the proposed project and anticipated usefulness of project results. This evidence shoud be as specific as possible. Testimonials are useful only if written by local authorities who possess detailed factual information concerning the magnitude of the problem and current efforts to deal with it. Letters of support are encouraged from potential users of the project's results.

   Any of a wide range of organizations may be appropriate users; they may include, but are not limited to, citizens' groups, professional organizations, units of local and state government, educational institutions, and industrial organizations.

   They should be familiar with the proposal and the project, and describe their views with regard to interest in the project and need for the data that the study will collect. Such endorsements should be explicit; broad, general statements of support from officials who are remote from the problem or policy issue under investigation are of little value. All supportive material must be **appended to each copy of the proposal** and not submitted separately.

2. Bibliography of sources consulted in background research during preparation of the proposal. The inclusion of key references here will assure reviewers as to the thoroughness of the group's preliminary study.
3. Curriculum vitae of participants already selected, following the format set forth on page 18.

III. SUBMISSION OF PROPOSALS

THE PROPOSAL PACKAGE

1. Fifteen (15) copies of the complete proposal are required.
2. Five (5) extra copies of the Cover Page and Abstract are required.
3. Copy should be double spaced on standard (not legal) size paper.
4. Pages are to be numbered at bottom center.
5. The Cover Page is the letter of transmittal. Institutional letters of endorsement or transmittal, supporting letters, institutional forms, etc., if included, must be appended to the proposal. When placed over the Cover Page they delay processing and increase chances for error.
6. Proposals are to be assembled in the following order from front to back:
   a. Acknowledgment Cards (see following section)
   b. Cover Page
   c. Summary Budget Pages
   d. Budget Explanations
   e. Abstract
   f. Narrative
   g. Appendices
7. Transmit in a single package. Secure packaging is mandatory. The Foundation cannot be responsible for the processing of proposals damaged in transit.
8. Mail to:

   Central Processing Section
   (Student-Originated Studies Program)
   National Science Foundation
   Washington, D.C. 20550

   or hand carry to Room 223, 1800 G Street, N.W., Washington, D.C.

ACKNOWLEDGMENT OF RECEIPT OF PROPOSALS

To facilitate prompt acknowledgment of the arrival of the proposal package at its destination the student project director should cut out two of the postcards on the back cover of this Guide, fill them in to identify the proposal, address one card to the Faculty Project Advisor, and the other to the Student Project Director. When the package arrives, the date of the receipt and an assigned proposal number will be stamped on the cards before they are returned, so that the proposer and the Foundation can refer to this number in all future correspondence about the proposal.

CLOSING AND AWARD DATES

Closing date for the receipt of proposals in the Foundation is 5:00 p.m., November 10, 1978. Proposers are cautioned that late arrival of a proposal may exclude it from the evaluation process. Awards are expected to be announced by March 1, 1979. Grant letters will be mailed shortly thereafter, and all unsuccessful proposers will receive a letter of declination from the Foundation.

CODES USED ON COVER PAGE

For Major Disciplinary Codes (on Cover Page) choose appropriate disciplines in descending order from the following list:

Major Disciplinary Codes

BZ	Biological Sciences
CH	Chemistry
EN	Engineering
EZ	Earth Sciences
IN	Interdisciplinary Sciences
MA	Mathematics
PY	Physics (includes Astronomy)
SZ	Social Sciences
ZZ	Other Science

For Field(s) of Interest and Application (on Cover Page) select up to three appropriate codes from the following list. List both numerical code and alphabetical abbreviation, arranged in descending order of significance.

Field of Interest and Application

Code	*Title*	*Abbreviation*
0100000	Special Interest	SPEC INTR
0101000	Curriculum Development	CUR DEVEL
0102000	Data Banks	DATA BANKS
0103000	Ethical Considerations	ETH CONSID
0104000	Information Systems	INFO SYS
0105000	Manpower & Training	MAN TRNG
0106000	Materials Research	MAT RES
0107000	Operations Research	OPER RES
0108000	Software Development	SOFTW DEV
0109000	Structural Technology	STRUC TECH
0110000	Technology Transfer	TECH TRNSF
1200000	Interagency	INT-AGENCY
0201000	Agriculture	AGRIC
0202000	Atmospheric Science-ICA	ATMOS SCI
0203000	Health	HEALTH
0204000	Oceanography	OCEANOG
0205000	Space	SPACE
0206000	Telecommunication	TELECOMM
0207000	Transportation	TRANSPORT
0208000	Water Resources	WATR RESORF
0300000	Problem-Oriented	PROB-ORIEN
0301000	Aging (Human)	AGINGHUMAN
0302000	Biological Pest Control	PEST CONTROL
0303000	Conflict Resolution	CONFLRESOL
0304000	Disaster & Natural Hazard	NAT HAZARD
0304010	Earthquake	EARTHQUAKE
0304020	Extreme Wind	EXTREMWIND
0304030	Floor	FLOOD
0304040	Fire	FIRE
0304050	Accident	ACCIDENT
0305000	Drug Abuse	DRUG ABUSE
0305010	Drug Abuse Effects Biol	DRUGABUS-B
0305020	Drug Abuse Effects Econom	DRUGABUS-E
0305030	Drug Abuse Prevention	DRUGABUS-P
0306000	Energy Res & Resources	ENERGY RES
0307000	Human Rights—Minority REL	HUMANRGHTS
0308000	Industrial Technology	INDUS TECH
0309000	Land Use & Planning	LANDUSEPLA
0310000	Municipal Service	MUNIC SERV
0311000	Polar Programs—Related	POLAR REL
0312000	Population	POPULATION
0313000	Regional & Environmental	REG & ENVR
0313010	Air Pollution	AIR POLLUT
0313020	Noise Pollution	NOISE POLL
0313030	Solid Waste Disposal	SOLIDWASTE
0313040	Water Pollution	WATER POLL
0314000	Rural Development	RURAL DEV
0315000	Social Data & Comm Devel	SOCIALDATA
0316000	Trace Contaminants	TRACE CONT
0317000	Urban Technology	URBAN TECH
0318000	Weather Modification	WEATHR MOD

IV. OTHER CONSIDERATIONS IN SUBMITTING PROPOSALS

ASSURANCE OF COMPLIANCE WITH CIVIL RIGHTS ACT

If the applicant university, college, or other organization has not filed an Assurance of Compliance with Title VI of the Civil Rights Act of 1964, as required by NSF regulations, pertinent forms and a copy of the regulations may be obtained by writing to the Division of Grants and Contracts of the National Science Foundation. The required Assurance form when completed by the institution, should be submitted to the Division of Grants and Contracts. Once an Assurance Form has been submitted by the applicant organization, it covers all proposals subsequently submitted by any department or other unit of that organization. Individual Assurance Forms are not necessary for each proposal. If there is any question about whether or not an institution has filed an Assurance of Compliance, the institution's business office should be consulted.

In accordance with established Foundation policy and implementation of the provisions of the Civil Rights Act of 1964, the Foundation requires that local brochures, and other general publicity designed to attract applicants to and inform them about the project, carry the following statement:

> In the operation of the project and in selecting individuals for participation in, and for administration of, the project, (name of institution) will not discriminate against any person on the ground of race, creed, color, or national origin.

CONFIDENTIAL ASPECTS OF PROPOSALS AND AWARDS

When a proposal results in a grant, it becomes a part of the record of the Foundation's transactions, available to the public upon specific request. Information that the Foundation and the grantee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law; therefore, any information that the applicant wishes to have the Foundation consider as privileged should be clearly marked as such as sent in a separate statement, two copies of which should accompany the proposal.

A proposal that does not result in a grant may be retained by NSF. Such a proposal will be released only: (1) with the consent of the proposer or (2) to the extent required by law. A proposal may be withdrawn at any time prior to final action thereon by NSF.

ACCESS TO PEER REVIEW INFORMATION

After final decisions have been announced, the Foundation will, upon request, inform the project director of the reasons for its decision on the proposal. Verbatim copies of reviews, not including the identity of the reviewer, will be made available to respective project directors upon specific request.

V. PROJECT AND AWARD MANAGEMENT

GRANT ADMINISTRATION

Grants will be administered in accordance with the terms and conditions of the award instrument.

An NSF grant is normally made to an organization, known as the grantee, rather than to the individual principal investigator or project director who proposed to conduct the project. Notification of an award is made by letter signed by the NSF grants officer. The grant establishes a relationship between NSF and the grantee in which:

a. NSF agrees to provide financial support for the project to be performed, under the provisions of the grant instrument.

b. The grantee agrees to the performance of the project, to the prudent management of the funds provided by the grant and to the provisions of the grant instrument.

The grantee is free to accept or reject the grant. Normally, the action to obtain Federal funds constitutes acceptance of a grant once it is made. However, in some cases, NSF may require written acceptance.

During the course of project management the SOS staff will provide, upon request, any additional information deemed necessary. All correspondence should be initiated by the project director and include the appropriate grant number. Mail should be addressed to the Student-Originated Studies Program, Division of Scientic Personnel Improvement, National Science Foundation, Washington, D.C. 20550. Office visit with the SOS staff may be made to Room 400, 5225 Wisconsin Avenue, N.W. Washington, D.C. Telephone inquiries should be directed to 202/282-7150.

DURATION OF GRANT

The grant period extends from the effective date of the award through the expiration date and is that span of time during which the objectives of the project are to be achieved and the grant funds are available for appropriate obligation. This period intentionally is longer than the duration of the project in order to allow time for preparation of reports after the project is concluded. The grant becomes effective on the date specified in the grant letter and expires on the date given in that letter. It is required that all commitments of grant funds be made during the grant period.

PROJECT TIME EXTENSIONS

It is expected that projects will be completed within the time period specified in the award instrument. Therefore requests for no-cost time extensions should be submitted only under the most unusual of circumstances.

Requests for no-cost extensions must be received at least 45 days prior to the expiration date of the grant, signed by both the Project Director and the Authorized Organizational

Representative. The letter must fully justify the need for the extension, give a summary of progress to date, include an estimate of the unobligated funds remaining, and describe a plan for their use. This plan must coincide with the original or amended objectives of the project. The fact that funds remain at the expiration of an award is not justification for an extension.

TAXABILITY OF STIPENDS

The Foundation views funds distributed to participants under science education projects as grants-in-aid for educational purposes, not as wages paid for services rendered. The taxability of these stipends, however, is decided by the Internal Revenue Service, State and local tax authorities, and the courts. Advice on this matter should be obtained from the District Director of Internal Revenue in whose district the recipient resides, or from the appropriate local tax authorities.

It is requested that a copy of the preceding paragraph be given to each participant.

BUDGET FLEXIBILITY

Although the grant budget provides an itemization of operating costs, the student project director is permitted to make transfers among items within the operating costs category as deemed necessary to effective project operation, to the extent that they are consistent with NSF policy as stated elsewhere in this Guide or in the grant document. In SOS, these changes may be made within the following limits without prior approval of the Program staff: Up to 50 percent of a budget line item to another line item—provided that the *addition* to the recipient line item does not exceed 50 percent of the amount initially budgeted therein. All such changes shall be reported immediately to the NSF Program officer.

Funds allocated for stipends may not be used to cover operating costs. If the project director desires, operating funds may be used to support additional participants, but any major change in the number of participants must have prior Foundation approval.

If fewer than the alloted number of students participate, it is expected that the funds utilized for operating costs will be reduced.

RESPONSIBILITIES OF THE STUDENT PROJECT DIRECTOR

Operating within the policies and procedures of his parent institution and these guidelines, the Student Project Director is responsible for the direction of the project and for the preparation of technical reports. His responsibilities include supervision of students associated with the project, authorizing expenditures of project funds, and maintaining liaison with the Foundation's program staff. Co-directors are not appointed nor recognized in these programs.

It is expected that the Student Project Director, acting in cooperation with the Faculty Project Advisor, will represent the institution in its dealings with the Foundation on substantive matters relating to the grant. The Foundation depends upon the Student Project Director to keep himself/herself fully informed concerning the progress of the project and to exercise good judgment in seeking timely advice from the faculty when problems develop that demand more experience than the students possess. Faculty expertise should be an ever-present reserve upon which the students draw in time of need.

All correspondence regarding the operation of the project and any requests for approval of proposed modification of project plans must be prepared and signed by the project director. Requests for approval of major changes must be endorsed by the Authorized Institutional representative.

The Foundation will address all correspondence pertaining to this grant to the project director *except* that fiscal accounting forms and inquiries pertaining to business matters are sent to the business officer of the grantee institution.

CHANGE OF PROJECT DIRECTOR

If a change of project director becomes necessary, the continuation of the grant will be subject to review by the National Science Foundation. The assessment of the merit of a project is often based in part upon the professional stature and extent of personal involvement of the designated project director. In the event a project director relinquishes active direction of the project and is not replaced, NSF support of the project will terminate. No change in project director shall become effective without written confirmation from the Foundation in the form of an amendment to the grant.

In order to implement this review, the following steps should be taken:

1. Under normal circumstances, the retiring project director should nominate his successor, who must be approved by the grantee institution.
2. The Program officer must be notified by letter of this nomination and provided the proposed project director's name together with a resume of his or her training and qualifications. This letter should be signed by the retiring project director and by the appropriate administrative official of the institution.
3. Since it is necessary that adequate guidance be available to each participant at all times, an acting project director should be appointed whenever the regular director is to be away from the activity for any appreciable length of time. If this period is less than 1 month, the letter notifying the Program officer of the action needs only the signature of the project director and is not subject to prior Foundation approval.

CHANGES IN PERSONNEL OR STUDY AND RESEARCH TOPICS

The Program officer should be notified immediately if changes in personnel or areas under study occur. The Foundation should be notified in advance of any modification that changes the period of student activity from that indicated in the original proposal. Occasionally a participant arrives late, absents himself unduly, or does not complete his entire tenure—either for personal reasons or at the request of the student project director. In such cases, it is necessary to adjust the participant's financial support under the project. Normally, the stipend allowances should be reduced proportionately. If an equitable and mutually agreeable solution cannot be reached between the participant and the project director, the matter, together with a statement of the circumstances, shall be referred by the student project director to the Program officer, who will make the final determination.

PROJECT REPORTING REQUIREMENTS

The Foundation's simplified grant reporting procedures are set forth as follows in Important Notice No. 73 (May 8, 1978).

1. Two copies of the Final Project Report (NSF Form 98A, revised May 1978) are to be submitted within 90 days after expiration of the award to:

   Division of Grants and Contracts
   Post-Award Projects Branch
   National Science Foundation
   Washington, D.C. 20550

The purpose of a final report is twofold. It provides for the record a factual account of the project, and it also provides an opportunity for an assessment of the effectiveness of the activity and of the NSF program through which the project was supported. Sample copy of 98A, revised, is on Pp. 19 and 20.

2. There is no standard form for the technical description of project and results (Form 98A, III), but a narrative account is preferred. It should be typed on standard size 8" by 10½" or 8½ x 11") paper, unbound, but stapled in the upper left-hand corner. The technical information should be submitted directly to the SOS program manager within 90 days after the expiration of the award.

Inclusion of photographs (unposed, 8" x 10", glossy) showing significant features of the project are appropriate.

Elaborate and expensive printed reports are to be avoided and should not be charged to NSF funds.

3. Final expenditure information, also required for each completed grant, is to be provided through the Quarterly Federal Cash Transactions Report (FCTR, formerly known as the Quarterly Expenditures Report). The Foundation's computerized version of FCTR is forwarded to the fiscal officer of each grantee institution by the Foundation's Division of Financial and Administrative Management (DFA) in the month following the close of each calendar quarter. Procedures for reporting are sent to grantees at the time an award is made. Completed Federal Cash Transactions Reports are returned to:

Division of Financial and
Administrative Management
National Science Foundation
Washington, D.C. 20550

4. In addition to the foregoing, student project directors are required to submit the following directly to the SOS program manager at the times specified:

   (1) A brief Interim Final Report is to be prepared by each working group in the project during the final week of activity and submitted promptly to the Program. The combined reports need not exceed two typewritten pages in length.

   (2) The Student Project Director's Administrative Report is to be submitted to the Program within 60 days after the close of the project's full-time activity. It should contain the following:

      a. A tabulation of all participants in the project—including those who did not receive stipend support from NSF—giving each participant's name, academic class (Sr., Jr., etc.; for summer participants, the class of the term previous to participation should be listed), duration of participation in the activity, and descriptive title of the selected project or problem.
      b. An evaluation of the project's activities and accomplishments.
      c. Any recommendations for Program Administration and Management.

   (3) An Abstract of the project's activity and findings for publication in the NSF SOS *Abstract Reports*, prepared in accordance with the following outline and sent to the Program before the Reporting Meeting:

      a. Project Title
      b. Host Institution
      c. Dates of Stipend Support
      d. List of Participants in alphabetical order, the Student Project Director designated by an asterisk; the Faculty Project Advisor named last and designated by that title.
      e. The research abstract itself—a precis of no more than 500 words.
      f. Location of the Reference Copy of the Final Technical Report (normally the institution's library)
      g. Author of the Abstract

Only one copy of the abstract is required.

VI. SUGGESTIONS ON CONDUCT OF PROJECTS

ELIGIBILITY AND SELECTION OF PARTICIPANTS*

The number of participants should be in substantial agreement with the number listed in the grant budget provided by the Foundation. Any proposed major change from this number should be discussed wih the Program staff.

Participants will be required to devote full-time (at least 40 hours per week) to the project for a period of 10 to 12 weeks. *During this time, they must keep themselves free from conflicting demands such as those imposed by classwork or outside employment, i.e.*, participants receiving stipend support may not hold a job during the project period, nor be enrolled for academic credit other than that which may be granted for project participation itself.

PARTICIPANT CONDITIONS

In accordance with established NSF policy and implementation of the provision of the Civil Rights Act of 1964, NSF requires that local brochures, and any other general publicity designed to attract applicants to and inform them about an URP project, carry the following statement:

> In the operation of the project and in selecting individuals for participation in and for administration of the project, (name of institution) will not discriminate

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* To qualify for stipend support, student applicants must be citizens (or nationals) of the United States at the time of application. Foreign students, including those who have applied for citizenship, are excluded although they may participate on a non-stipend basis if otherwise eligible.

against any person on the grounds of race, creed, color, sex, or national origin.

PROTECTION OF HUMAN SUBJECTS

Prior to undertaking a project involving human subjects in experimentation, the Project Director must submit to the Foundation's Division of Grants and Contracts (with copy to the Program Manager) written assurance that he or she will comply with regulations of the Department of Health Education, and Welfare appearing in Title 45 Code of Federal Regulations, Part 46, Subtitle A. DHEW Publication No. (NIH) 72-102 gives additional guidance.

ANIMAL EXPERIMENTATION

Project directors are reminded that all animal experimentation must comply with the Laboratory Animal Welfare Act of 1966 (PL 89-544, as amended, 7 U.S.C. 231 et seq.) and the regulations promulgated thereunder by the Secretary of Agriculture (9 CFR, Sub-chapter A). If participants are brought into contact with animal experimentation as an aspect of scientific research, such exposure should include a strong admonition that many procedures justifiable in the research laboratory, conducted under carefully controlled conditions by highy trained persons, are not appropriate for student projects carried out at home, and that the inflicting of pain, infection, or malnutrition upon living vertebrates can be justified only by substantial and meaningful results beyond the scope of the usual student project. Home projects involving animals may easily transgress both moral and legal limits if they are conducted without adequate supervision and control, and may not meet the Federal standards for humane handling, care, treatment, and transportation of animals as described in DHEW Publication No. (NIH) 74-23, "Guide for the Care and Use of Laboratory Animals" which apply to any federally funded research facility.

Project directors should give full and careful consideration to the balance between the potential risks and the learning that may be achieved before assigning students to research projects in which animals are to be subjected to pain.

RECOMBINANT DATA

The grantee is required to adhere to the provisions of NSF Important Notice No. 64, dated April 6, 1977, Subject: Research Involving Recombinant DNA Molecules, and the NIH Guidelines for Recombinant DNA Research, published in the Federal Register, Vol. 41, No. 131, dated July 7, 1976.

SAFETY PRECAUTIONS

Project directors are cautioned to adopt, instruct participants in, and enforce all safety precautions appropriate to the nature of the work. NSF assumes no liability with respect to accidents, bodily injury, illness, or breach of contract or other damages or loss, or with respect to any claims arising out of any activities undertaken with the financial support of an NSF grant, whether with respect to persons, property of the grantee, or third parties (GPM 792, NSF 77-47).

GOVERNMENT EXCESS PROPERTY

Grantees are eligible to acquire government excess property (scientific equipment and supplies) through no-cost transfers from the Federal Government to the grantee institution. Those not acquainted with this procedure should request a copy of Important Notice No. 58 and Form SF 122 from the Project Property Section, Division of Grants and Contracts, National Science Foundation, Washington, D.C. 20550. The total value of property to be acquired under a grant is normally limited to the amount of the grant.

Rights in Inventions

The terms of the grant will generally provide that NSF shall determine the rights in any invention. However, special provision will be made for inventions arising under an industrial URP Project.

ENTERTAINMENT

Direct operating cost funds provided by NSF must not be used for entertainment even though coffee hours, picnics, a dinner, and other such activities may contribute to the success of the project. In most instances, participants will be willing to pay for such activities, or other sources of support can be secured. These funds should be kept completely separate from all NSF accounts.

ACKNOWLEDGMENT AND DISCLAIMER

An acknowledgment of NSF support must be made in connection with the publication of any material based on or developed under a project supported by NSF to the effect that: "This (material) was prepared with the support of National Science Foundation Grant No. 00."

Any materials, books, monographs, proceedings of symposia, or similar publications supported by an NSF grant must contain a statement, immediately following the acknowledgment, that contains an expression of the following: "Any opinions, findings, conclusions or recommendations expressed (herein) are those of the authors(s) and do not necessarily reflect the views of the National Science Foundation."

NEWS MEDIA CONTACTS

Following receipt of the NSF award, project directors may want to prepare a local news release to inform the public of the forthcoming project. Later, when the activities are under way, another release may be merited. Project directors should cooperate with news media as deemed appropriate. The Program will appreciate news clips on the project.

SITE VISITS

In order to maintain close contact with activities supported by the Foundation, members of the staff or appointed consultants will visit some of the projects during each year. The project directors will, when possible, be notified in advance of such a visit. Interruptions of the projects will be kept to a minimum; the primary objective of the visits is to carry on a meaningful discussion of the project with the director and participants.

MEETING

A Foundation-sponsored SOS Reporting Meeting will be held in Washington, D.C. during the post-Christmas week of 1979. Each project will be represented by two students, one of whom will present a report on the research.

PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

Directorate for Science Education

Cover Page

FOR CONSIDERATION BY NSF ORGANIZATIONAL UNIT
(Indicate the most specific unit known, i.e. program, division, etc.)

Student-Originated Studies

IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? Yes ____ No ____ ; IF YES, LIST ACRONYM(S):

PROGRAM ANNOUNCEMENT/SOLICITATION NO.: **SE 79-22**

CLOSING DATE **November 10, 1978**

NAME OF SUBMITTING ORGANIZATION TO WHICH AWARD SHOULD BE MADE (INCLUDE BRANCH/CAMPUS/OTHER COMPONENTS)

ADDRESS OF ORGANIZATION (INCLUDING ZIP CODE)

TITLE OF PROPOSED PROJECT (12 WORDS MAXIMUM)

$ REQUESTED FROM NSF

FULL-TIME PROJECT ACTIVITY PERIOD
NO. WEEKS ________ FROM ________ TO ________
Mo Day Mo Day

STUDENT PROJECT DIRECTOR AND SOCIAL SECURITY NO.	DEPARTMENT	PHONE OFFICE: HOME:
FACULTY ADVISOR AND SSN*	DEPARTMENT	PHONE OFFICE: HOME:

SOS PROJECTS ARE INTERDISCIPLINARY. LIST ADDITIONAL DISCIPLINES AS DESIRED IN DESCENDING ORDER OF IMPORTANCE: ______, ______, ______, ______, ______

FIELD OF INTEREST AND APPLICATION: SELECT UP TO THREE CODES; LIST BOTH NUMERICAL CODE AND ABBREVIATION: ____________ ; ____________ ; ____________

DOES HOST INSTITUTION INTEND TO GRANT ACADEMIC CREDIT FOR WORK ON PROJECTS? YES____ NO____

TOTAL NO. OF FULL-TIME PARTICIPANTS: ______ NO. UNDERGRADUATED: ______ NO. GRADUATES: ______

*Submission of social security numbers is voluntary and will not affect the organization's eligibility for an award. However they are an integral part of the NSF information system and assist in processing the proposal. SSN solicited under NSF Act of 1950, as amended.

PRINCIPAL INVESTIGATOR/ STUDENT PROJECT DIRECTOR	AUTHORIZED ORGANIZATIONAL REP.	OTHER ENDORSEMENT (Faculty Advisor)
NAME	NAME	NAME
SIGNATURE	SIGNATURE	SIGNATURE
TITLE	TITLE	TITLE
DATE	DATE	DATE

SUMMARY PROPOSAL BUDGET

FOR NSF USE ONLY	
PROPOSAL NO.	
DURATION (MONTHS)	
PROPOSED	REVISED

ORGANIZATION AND ADDRESS

PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR

NSF USE	A. SENIOR PERSONNEL (LIST BY NAME; SHOW NUMBERS OF PEOPLE IN BRACKETS; SALARY AMOUNTS MAY BE LISTED ON SEPARATE SCHEDULE) GPM 205.1b	NSF FUNDED MAN MONTHS CAL.	ACAD.	SUMR.	FUNDS REQUESTED BY PROPOSER	FUNDS GRANTED BY NSF (IF DIFFERENT)
	1. P.I./P.D.				$	$
	2. CO P.I./P.D.				$	$
	3. CO P.I./P.D.				$	$
	4. CO P.I./P.D.				$	$
	5. CO P.I./P.D.				$	$
11115	6. ( ) ◄ SUBTOTALS A1 - A5 ►				$	$
	FACULTY AND OTHER SENIOR ASSOCIATES (ATTACH EXTRA SHEET IF NECESSARY)					
	7.				$	$
	8.				$	$
	9.				$	$
	10.				$	$
	11.				$	$
11117	12. ( ) ◄ SUBTOTALS A7 - A11 ►				$	$
	B. OTHER PERSONNEL (LIST NUMBERS IN BRACKETS)					
11141	1. ( ) POSTDOCTORAL ASSOCIATES				$	$
11149	2. ( ) OTHER PROFESSIONALS				$	$
11150	3. ( ) GRADUATE STUDENTS				$	$
11152	4. ( ) UNDERGRADUATE STUDENTS				$	$
11182	5. ( ) SECRETARIAL - CLERICAL				$	$
11183	6. ( ) TECHNICAL, SHOP, OTHER				$	$
	TOTAL SALARIES AND WAGES (A+B)				$	$
11200	C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				$	$
	TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A+B+C)				$	$
	D. EQUIPMENT (LIST ITEMS AND DOLLAR AMOUNTS FOR EACH ITEM)					
23181	TOTAL EQUIPMENT				$	$
	E. MATERIALS AND SUPPLIES					
32630					$	$
	F. DOMESTIC TRAVEL					
42111					$	$
	G. FOREIGN TRAVEL (LIST DESTINATION AND AMOUNT FOR EACH TRIP; GPM 731)					
42112					$	$

PAGE 1 OF 2 PAGES

SUMMARY PROPOSAL BUDGET

PROPOSAL NO.

52500	H. PUBLICATION COSTS/PAGE CHARGES	$	$
62315	I. COMPUTER (ADPE) SERVICES	$	$
	J. CONSULTANT SERVICES (IDENTIFY CONSULTANTS BY NAME AND AMOUNT; GPM 516)	▨	▨
		$	$
	K. PARTICIPANT SUPPORT COSTS, IF ALLOWED BY PROGRAM GUIDE (ITEMIZE) GPM 518 1. STIPENDS $ ______ 2. TRAVEL $ ______ 3. SUBSISTENCE $ ______ 4. OTHER - SPECIFY $ ______	▨	▨
	5. TOTAL PARTICIPANT COSTS (K1 + K2 + K3 + K4)	$	$
	L. ALL OTHER DIRECT COSTS (List items and dollar amounts. Details of subcontracts, including work statements and budget, should be explained in full in proposal.) $ ______ $ ______ $ ______ $ ______	▨	▨
65001	TOTAL OTHER DIRECT COSTS	$	$
	M. TOTAL DIRECT COSTS (A THROUGH L)	$	$
	N. INDIRECT COSTS (Specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs included in on/off campus bases in remarks.) Rate____%. Base__________. On Campus____; Off Campus_____. (Student Stipends may NOT be used in base for Indirect Cost Computation.)	▨	▨
74100	TOTAL INDIRECT COSTS	$	$
	O. TOTAL DIRECT AND INDIRECT COSTS (M + N)	$	$
74500	P. LESS RESIDUAL FUNDS (If for further support of current project; GPM 252 and 253)	$	$
75000	Q. AMOUNT OF THIS REQUEST (O MINUS P)	$	$

REMARKS

NOTE: SIGNATURES REQUIRED ONLY FOR REVISED BUDGET (GPM 233). THIS IS REVISION NO.

SIGNATURE OF PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR	DATE OF SIGNATURE	TYPED OR PRINTED NAME AND TITLE
SIGNATURE OF AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	DATE OF SIGNATURE	TYPED OR PRINTED NAME AND TITLE

FOR NSF USE ONLY

INDIRECT COST RATE VERIFICATION			PROGRAM OFFICER APPROVAL
Date Checked	Date of Rate Sheet	Signature	

Grant Number	Amend No.	Institution	Organization	Fund Acct.	Program	Object	

	Proposal Number	Dur.	Chg.	Award Date	Proposed Amount	Prpsd. Dur.	

CURRICULUM VITAE FORMAT FOR STUDENT PROJECT DIRECTORS AND PARTICIPANTS

Name: ____________________ (Last) (First) (Middle) Age: __________ (As of May 1, 1978)

Present Institution: ____________________ Sex: Female _____ Male _____

Other Institutions Attended: ____________________

Major Field(s): ____________________ Minor(s): ____________________

Class (as of May 1, 1978): ____________________

Courses already completed which are relevant to proposed project (Faculty advisor will please submit in confidence grades for students in those institutions where policy prohibits their being shown to students.):

Course Title	Grade	Course Title	Grade

Additional relevant courses to be completed before summer of 1978:

Previous experience in research or project-oriented studies:

Skills, hobbies, interests pertinent to the proposed study:

Please note briefly why you wish to participate in the projected studies:

NATIONAL SCIENCE FOUNDATION
Washington, D.C. 20550

FINAL PROJECT REPORT
NSF FORM 98A

PLEASE READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING

PART I–PROJECT IDENTIFICATION INFORMATION

1. Institution and Address	2. NSF Program	3. NSF Award Number
	4. Award Period From To	5. Cumulative Award Amount

6. Project Title

PART II–SUMMARY OF COMPLETED PROJECT *(FOR PUBLIC USE)*

PART III–TECHNICAL INFORMATION *(FOR PROGRAM MANAGEMENT USES)*

1. ITEM *(Check appropriate blocks)*	NONE	ATTACHED	PREVIOUSLY FURNISHED	TO BE FURNISHED SEPARATELY TO PROGRAM	
				Check (√)	Approx. Date
a. Abstracts of Theses					
b. Publication Citations					
c. Data on Scientific Collaborators					
d. Information on Inventions					
e. Technical Description of Project and Results	▨				
f. Other *(specify)*	▨				

2. Principal Investigator/Project Director Name *(Typed)*	3. Principal Investigator/Project Director Signature	4. Date

NSF Form 98A (5-78) Supersedes All Previous Editions

Form Approved OMB No. 99R0013

INSTRUCTIONS FOR FINAL PROJECT REPORT
(NSF FORM 98A)

This report is due within 90 days after the expiration of the award. It should be submitted in two copies to:

National Science Foundation
Division of Grants and Contracts
Post-Award Projects Branch
1800 G Street, N.W.
Washington, D.C. 20550

INSTRUCTIONS FOR PART I

These identifying data items should be the same as on the award documents.

INSTRUCTIONS FOR PART II

The summary (about 200 words) must be self-contained and intelligible to a scientifically literate reader. Without restating the project title, it should begin with a topic sentence stating the project's major thesis. The summary should include, if pertinent to the project being described, the following items:

- The primary objectives and scope of the project.
- The techniques or approaches used only to the degree necessary for comprehension.
- The findings and implications stated as concisely and informatively as possible.

This summary will be published in an annual NSF report. Authors should also be aware that the summary may be used to answer inquiries by nonscientists as to the nature and significance of the research. Scientific jargon and abbreviations should be avoided.

INSTRUCTIONS FOR PART III

Items in Part III may, but need not, be submitted with this Final Project Report. Place a check mark in the appropriate block next to each item to indicate the status of your submission.

a. Self-explanatory.
b. For publications (published and planned) include title, journal or other reference, date, and authors. Provide two copies of any reprints as they become available.
c. Scientific Collaborators: provide a list of co-investigators, research assistants and others associated with the project. Include title or status, e.g. associate professor, graduate student, etc.
d. Briefly describe any inventions which resulted from the project and the status of pending patent applications, if any.
e. Provide a technical summary of the activities and results. The information supplied in proposals for further support, updated as necessary, may be used to fulfill this requirement.
f. Include any additional material, either specifically required in the award instrument (e.g. special technical reports or products such as films, books, studies) or which you consider would be useful to the Foundation.

90%